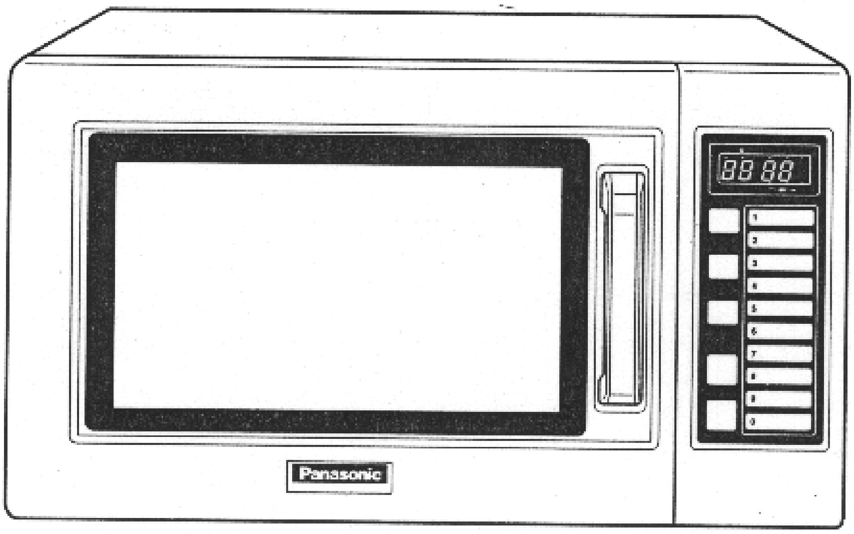
ORDER NO. MOD9706148C3

Service Manual

Microwave Oven

NE-1037



Specifications

Power Source	220 V 50 Hz, single phase	230 V, 240 V 50 Hz, single phase
Required Power	6.8A 1450 W	6.6A 1490 W
Output	HI (high) 950 W(IEC705) MED (medium) 480 W DEF (defrost) 340 W	HI (high) 1000 W(IEC705) MED (medium) 500 W DEF (defrost) 340 W
Frequency	2450 MHz	
Outer Dimensions (W X D X H)	510 mm X 360 mm X 306 mm	
Cavity Dimensions (W X D X H)	330 mm X 330 mm X 200 mm	
Net Weight	18 kg.	
Shipping Weight	20.3kg	
Timer	HI (high) 30 minutes MED (medium) 99 minutes 99 seconds DEF (defrost) 99 minutes 99 seconds	
Memory	10 Memory Pads with Double Quantity (X2) Pad	

Specifications subject to change without notice.

Panasonic®

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

WARNING

* This product should be serviced only by trained, qualified personnel.
This service manual covers products for following markets.
When troubleshooting or replacing parts, please refer to the country identifications shown below for your applicable product specification.

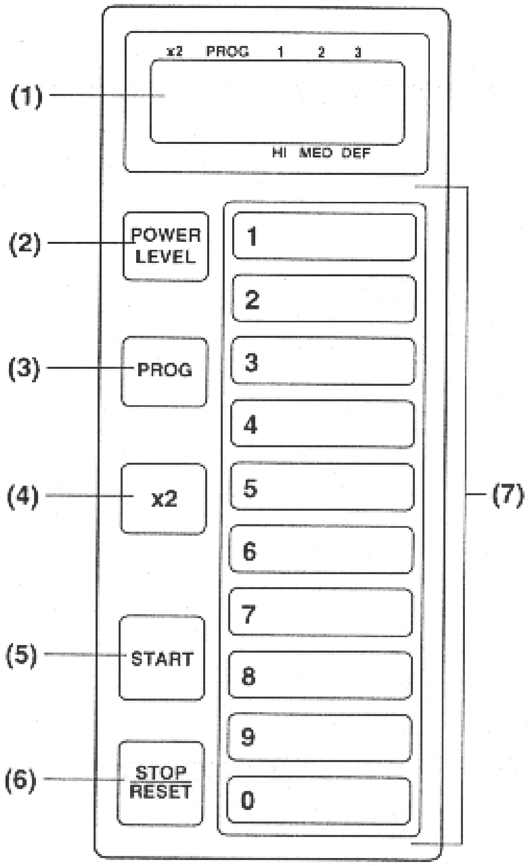
YNQ ··············· For Singapore
MNQ ·············· For Malaysia
HNE ··············· For Hong Kong
VPE ··············· For South Africa
QPQ ·············· For Australia
JPG ··············· For New Zealand

CONTENTS

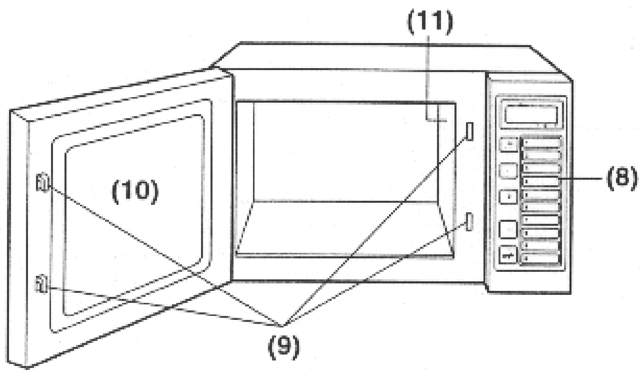
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OUTLINE DIAGRAM

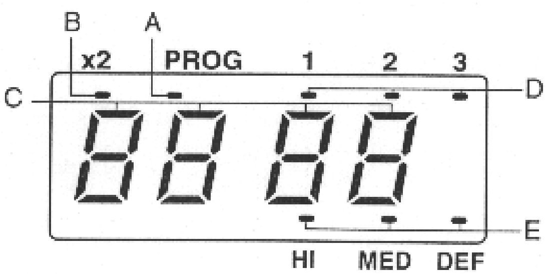
NE-1037



(1) Digital Display Window (see below)
(2) Power Level Pad
(3) Program Pad
(4) Double Quantity (x2) Pad
(5) Start Pad
(6) Stop/Reset Pad
(7) Memory Pads
(8) Control Panel
(9) Door Safety Lock System
(10) Oven Window
(11) Oven Lamp



Digital Display Window Indicator Locations



A - Program Change Indicator

B - Double Quantity (x2) Heating Indicator

C - Memory Pad Number and Heating Time Display (min. sec.)

D - Stage Heating Indicator

E - Power Level Indicator

HI = high

MED = medium

DEF = defrost

OPERATION PROCEDURE

1. Manual Heating for Single Stage

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load in the oven and close the door.	0
3. Press [POWER LEVEL] pad once. (Sets to HIGH power)	1 HI
4. Press [2], [0], [0] pads. (Sets to 2 minutes)	1 2 00 HI
5. Press [START] pad. (Sets to 2 minutes)	1 1 59 HI
6. When the time is up, you hear 5 beeps. Display blinks zero.	0
7. Open the door and take out the water load. Display stops blinking.	0
8. Close the door. 1 minute later, display will return blank.	

2. Manual Heating for 2nd Stage

OPERATION	DISPLAY
1. Follow step 1 to 4 for 1st stage.	1 2 00 HI
2. Press [POWER LEVEL] pad 2 times. (Sets MED power)	1 2 MED
3. Press [1], [0], [0] pads. (Sets to 1 minute)	1 2 1 00 MED
4. Press [START] pad. Total time for both stages will be displayed.	1 2 3 00 HI MED
5. When the first stage time is up, you hear one beep sound. (2nd stage)	2 59 MED
6. When the time is up, you hear 5 beeps. Display blinks zero.	0
7. Open the door and take out the water load. Display stops blinking.	0
8. Close the door. 1 minute later, display will turn blank.	

3. Memory Setting for Single Stage Operation Oven is not in program lock mode.

OPERATION	DISPLAY
1. Press [PROG] pad. NOTE: Display must be blank to start programming.	PROG
2. Press [5] pad. (Sets to memory pad 5)	PROG 5
3. If memory was previously programmed, the pad number and the previously selected time and power level will appear in the display.	PROG 1 5
	PROG 1 1 00 HI
4. The pad number and Stage Heating Indicator will appear in the display again.	PROG 1 5

OPERATION	DISPLAY
5. Press [POWER LEVEL] pad 2 times. (Sets to MED power)	PROG 1 MED
6. Press [3], [0] pads. (Sets to 30 seconds)	PROG 1 30 MED
7. Press [PROG] pad again.	PROG 1 5
8. 2 seconds later, the time and power level setting for single stage will appear in the display.	PROG 1 30 MED X2 PROG 1 5
9. 2 seconds later, Double Quantity Heating Indicator and then the double heating time will appear in the display.	X2 PROG 1 1 00 MED
10. 2 seconds later, the display will go blank.	

4. Memory setting for 2nd stage

OPERATION	DISPLAY
1. Follow steps 1 to 6 for memory setting for single stage. (MED power, 30 seconds for 1st stage)	PROG 1 30 MED
2. Press [POWER LEVEL] pad 3 times. (Sets defrost power for 2nd stage)	PROG 1 2 DEF
3. Press [2], [0], [0] pad.	PROG 1 2 2 00 DEF
4. Press [PROG] pad.	PROG 1 2 5
5. 2 seconds later, the display shows your setting program.	PROG 1 30 MED PROG 2 2 00 DEF
6. This indicates double cooking time. Example: This means: If you press "5", oven will operate 30 sec-MED, 2 min-DEF. If you press "X2" and "5" oven will operate 1 min-MED, 4 min-DEF.	X2 PROG 1 2 5 X2 PROG 1 1 00 MED X2 PROG 2 4 00 DEF
7. After all of your programming has been completed, the display will go blank.	

5. Memory Pad Heating

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. Open the door. Place a water load in the oven and close the door.	0
3. Press [7] pad. (Sets for 2 minutes)	PROG 1 7
4. Press [START] pad.	PROG 1 2 00 HI
5. When the time is up, you hear 5 beeps. Display blinks zero.	0

OPERATION	DISPLAY
6. Open the door and take out water load. Display stops blinking.	0
7. Close the door, display will return blank after 1 minute.	

6. To Read Cycle Counter

OPERATION	DISPLAY
1. Open the door and leave it open.	0
2. While pressing [STOP/RESET] pad, press [POWER LEVEL] pad. eg. 0010 means the oven has been used 1,000 times. 9999 means the oven has been used 999,900 times.	00 10
3. 2 seconds later, the display will return to "0".	0

7. To Select Beep Tone Options (ON/OFF of Beep Tone)

OPERATION	DISPLAY
1. Open the door.	0
2. Press [PROG] pad.	0
3. Press [0] pad.	PROG 1 bEEP
4. Press [0] pad again. (No beep tone setting)	PROG 2 bEEP

OPERATION	DISPLAY
5. Press [PROG] pad again. You have completed programming the beep tone option.	PROG 2 bEEP
6. 2 seconds later, the display will return to "0".	0

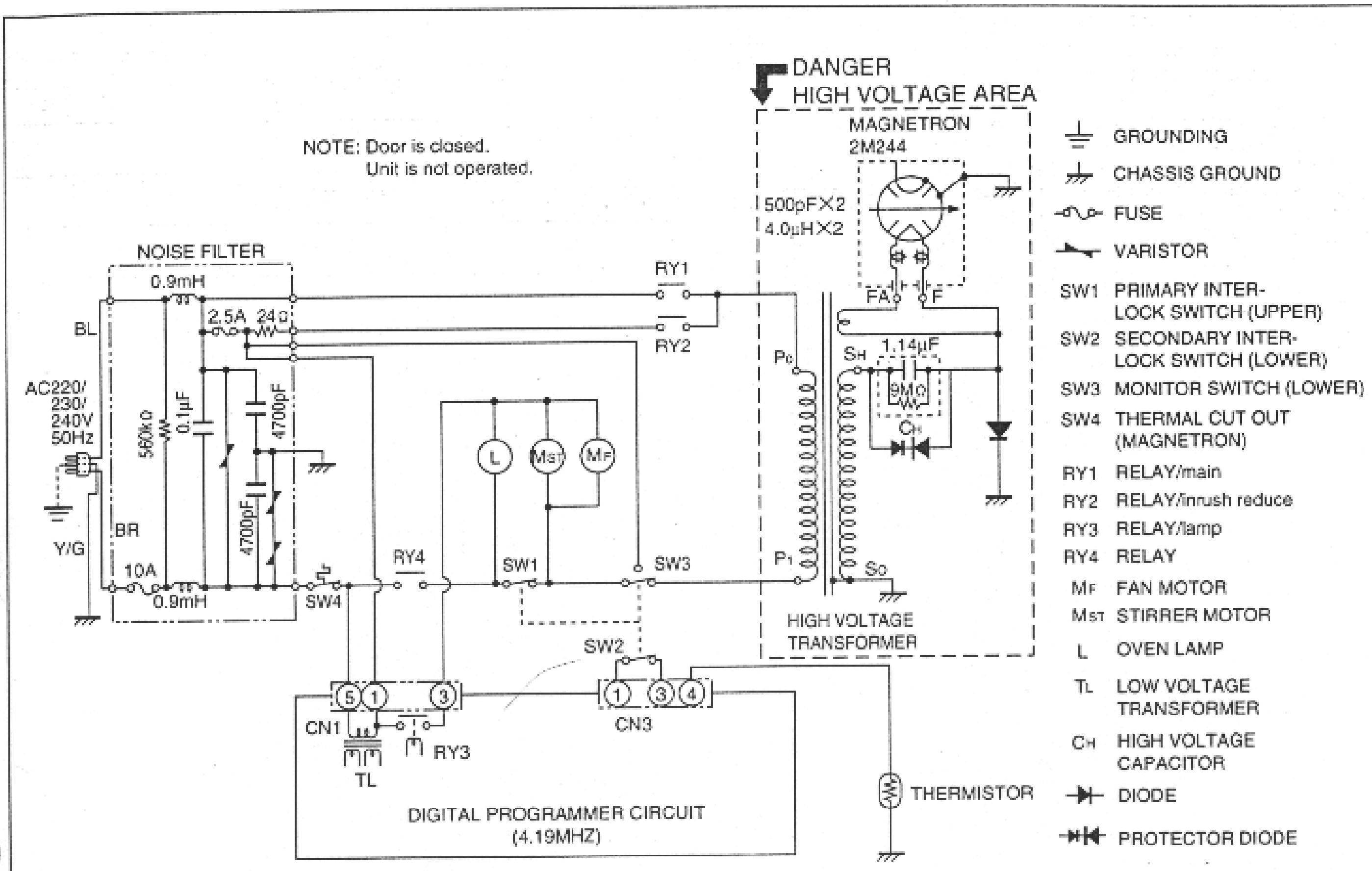
8. To Lock Program of Memory Pad

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle. — Display must be blank —	
2. Press and hold in the [PROG] pad until the display shows "P" and "L". (Approximately 6 seconds) NOTE: When oven is in "program lock mode", display will not show anything and remain blank.	PROG PROG P L

9. To Release the Memory Pad Program Lock

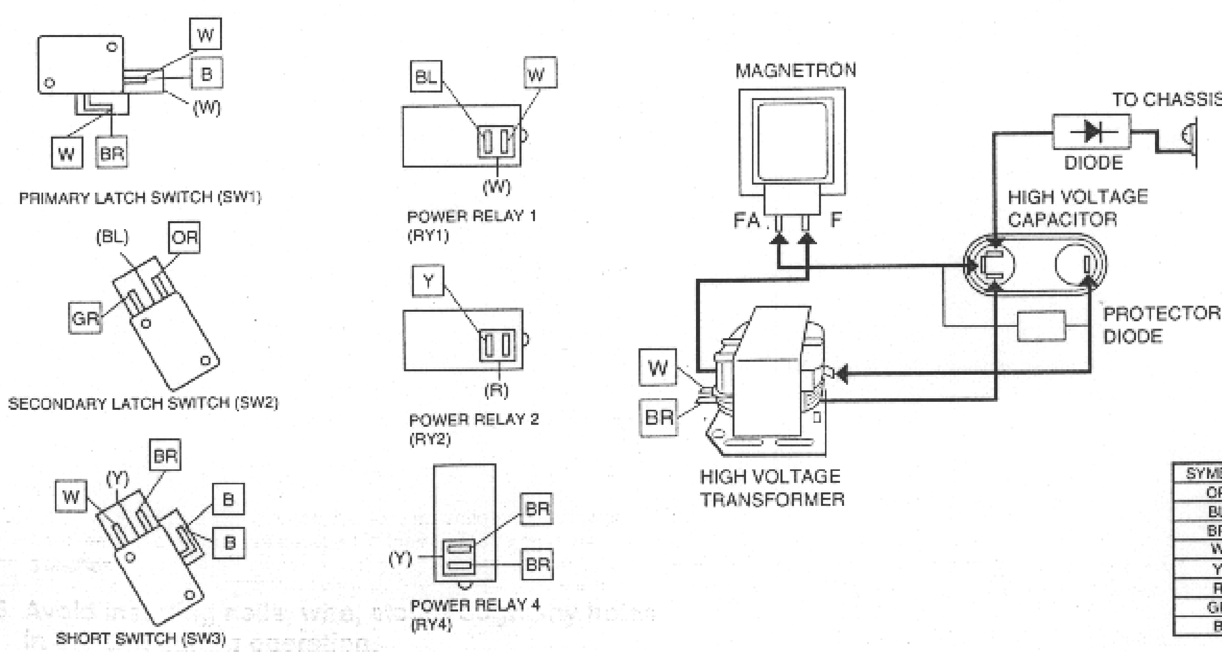
OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	
2. While pressing and holding the [STOP/RESET] pad, press and hold in the [PROG] pad until the display shows "P". (Approximately 6 seconds) NOTE: When oven is in "program unlock mode", display will not show anything and remain blank.	PROG PROG P

NE-1037 SCHEMATIC DIAGRAM



WIRING DIAGRAM

NOTE: *When replacing, check the lead wire colour as shown.
*Colours shown by ( ) indicate colours of lead wire connector housing.



SYMBOL	COLOUR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK

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M049

DESCRIPTION OF OPERATING SEQUENCE

1. Variable power cooking control

The coil of power relay B (RY1) is energized intermittently by the digital programmer circuit, when the oven is set at any power selection except for High power position. The digital programmer circuit controls the ON-OFF time of power relay B contacts in order to vary the output power of the microwave oven from "Low" to "High" power. One companies ON and OFF cycle of power relay B is 22 seconds. The relation between indications on the control panel and the output of the microwave oven is as shown in table.

NOTE: The ON/OFF time ratio does not correspond with the percentage of microwave power since approximately 2 seconds are required for heating of magnetron filament.

POWER SETTING	*OUTPUT POWER (W) APPROX.	ON-OFF TIME OF POWER RELAY B (RY1)	
		ON (SEC)	OFF (SEC)
HIGH	1000/950	22	0
MEDIUM	500/480	11	11
DEFROST	340	8	14

*IEC-705-88 test procedure.
Specifications subject to change without notice

CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is high-voltage, high-current equipment. Though it is free from danger in ordinary use, extreme care should be taken during repair.

CAUTION

Servicemen should remove their watches whenever working close to or replacing the magnetron.

1. Check the grounding

Do not operate on a 2-wire extension cord. The microwave oven is designed to be used when grounded. It is imperative, therefore, to make sure it is grounded properly before beginning repair work.

2. Warning about the electric charge in the high voltage capacitor

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitor.
When replacing or checking parts, remove the power plug from the outlet and short the terminal of the high voltage capacitor (terminal of lead wire from diode) to chassis ground with an insulated handle screwdriver to discharge.

WARNING

There is high-voltage present, with high-current capabilities in the circuits of the high voltage winding and filament winding of the high voltage transformer. It is extremely dangerous to work on or near these circuits with oven energized.
DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

WARNING

Never touch any circuit wiring with your hand nor with an insulated tool during operation.

3. When parts must be replaced, remove the power plug from the outlet.

4. When the 10A 250V fuse is blown due to the operation of short switch:

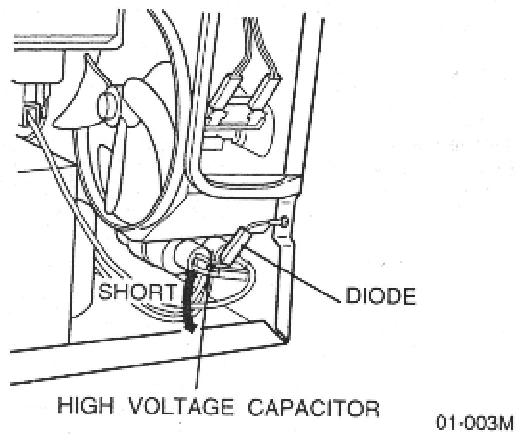
WARNING

When the 10A 250V. fuse is blown due to the operation of short switch, you must replace Primary latch switch and short switch. Also replace power relay 1 (RY1) when the continuity check reads shorted contacts (1-2).

(A) This is mandatory. Refer to "Adjustments and Measurement" for these switches.
(B) When replacing the fuse, confirm that it has the appropriate rating for these models.
(C) When replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.

5. Avoid inserting nails, wire, etc. through any holes in the unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any other holes or gaps, because such objects may work as an antenna and cause microwave leakage.



Touch chassis side first then short to the high voltage capacitor terminal.

6. Confirm after repair

(A) After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing.
Microwaves might leak if screws are not properly tightened.
(B) Make sure that all electrical connections are tight before inserting the plug into the wall outlet.

CAUTION
MICROWAVE RADIATION

DO NOT BECOME EXPOSED TO RADIATION FROM THE MICROWAVE GENERATOR OR OTHER PARTS CONDUCTING MICROWAVE ENERGY.

IMPORTANT NOTICE

1. The following components have potentials above 250V while the appliance is operated.
   ※ Magnetron
   ※ High voltage transformer
   ※ High voltage diode
   ※ High voltage capacitor
   ※ Protector diode

   Pay special attention on these portions.
2. When the appliance is operated with the door hinge or magnetron fixed incorrectly, the microwave leakage can reach more than 5mW/cm². After repair or exchange, it is very important to check if magnetron and the door hinge is correctly fixed.

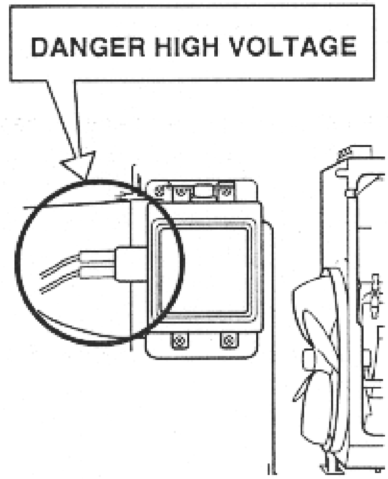
1. Magnetron

(A) Discharge the high voltage capacitor.
(B) Remove 2 screws holding magnetron thermal cutout.
(C) Remove 1 screw holding air guide A.
(D) Disconnect 2 high voltage lead wires from magnetron filament terminals.
(E) Remove 4 screws holding the magnetron.

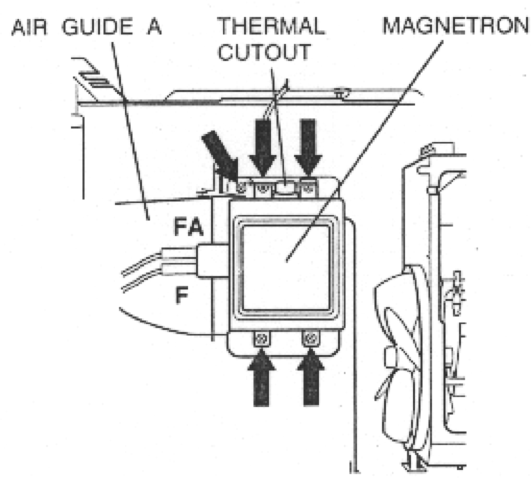
NOTE: After replacement of the magnetron, tighten mounting screws properly making sure there is no gap between the waveguide and the magnetron to prevent microwave leakage.

CAUTION
When replacing the magnetron, be sure the antenna gasket is in place.

CAUTION
When connecting 2 filament lead wires to the magnetron terminals, be sure to connect the lead wires in the correct position. The lead wire of high voltage transformer should be connected to "F terminal" and the lead wire from high voltage capacitor should be connected to "FA terminal".



08-081M



08-073M

2. Digital Programmer Circuit (DPC) and membrane key board.

NOTE: Be sure to ground any static electric charge built up on your body before handling the DPC.

(A) Disconnect all connectors from D.P.C.
(B) Remove 2 screws holding escutcheon base and slide the escutcheon base upward slightly.
(C) Release flat cable connector's lock of DPC by pushing both levers to inside and pull them upward, and remove flat cable of membrane key board.
(D) Remove 3 screws holding DPC.

To replace membrane key board

(E) Remove escutcheon bracket from escutcheon base by freeing 4 catch hooks on the escutcheon base.
(F) Remove metal trim from escutcheon base.
(G) Peel off the tab of membrane key board from escutcheon base.
(H) Peel off the display filter from escutcheon base.
(I) Push the upper part of key board (display window portion) from back of escutcheon base and peel off escutcheon sheet and membrane key board completely from escutcheon base.

NOTE: 1. The membrane key board is attached to the escutcheon base with double faced adhesive tape. Therefore, applying hot air such as using a hair dryer is recommended for smoother removal.
2. When installing new membrane key board, make sure that the surface of escutcheon base is cleaned sufficiently so that any problems (shorted contacts or uneven surface) can be avoided.
3. Alignment position of membrane key board is as follows (see figure);
Membrane key board: Right and upper edges
Escutcheon sheet: Right and lower edges

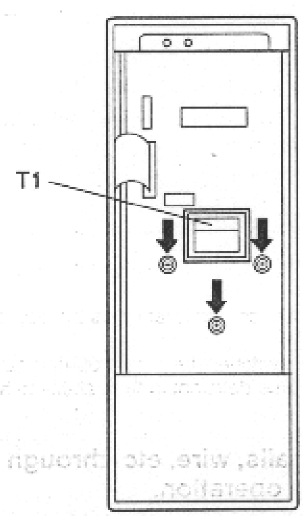
3. Low voltage transformer and/or power relays (RY1, RY2, RY3, RY4)

NOTE: Be sure to ground any static electric charge built up on your body before handling the DPC.

(A) Using solder wick or a desoldering tool and 30W soldering iron, carefully remove all solder from the terminal pins of the low voltage transformer and/or power relays.

NOTE: Do not use a soldering iron or desoldering tool of more than 30 watts on DPC contacts.

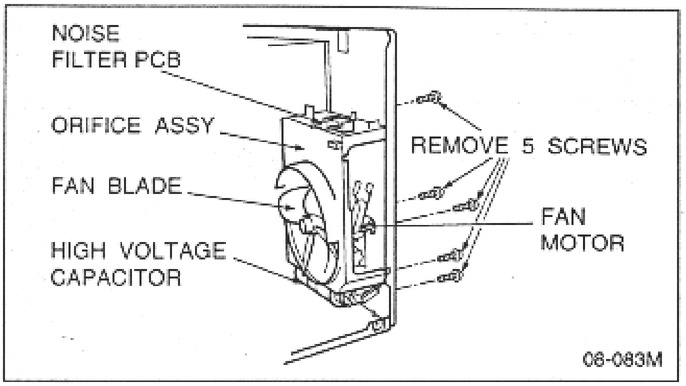
(B) With all the terminal pins cleaned and seperated from DPC contacts, remove the defective transformer/power relays and install new transformer/power relays making sure all terminal pins are inserted completely. Resolder all terminal contacts carefully.



08-082M

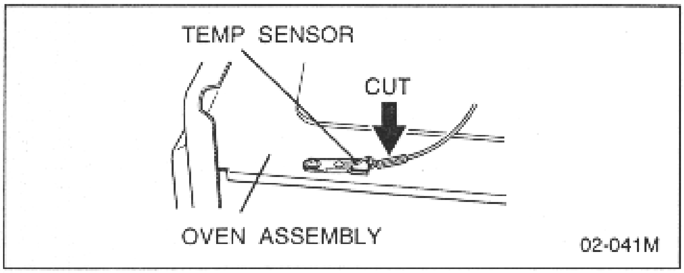
4. Fan motor

(A) Disconnect 2 lead wires from fan motor terminals.
(B) Disconnect 3 lead wires from noise filter PCB terminals.
(C) Disconnect 4 high voltage lead wires from high voltage capacitor terminals.
(D) Remove 5 screws holding fan motor and orifice assy and detach the orifice assy with fan motor from oven assy.
(E) Remove fan blade from the fan motor shaft by pulling it straight out.
(F) Separate the fan motor from the orifice assy by freeing 2 catch hooks on the orifice assy.



5. Temp sensor (thermal protector)

(A) Cut a lead wire at the top of sensor terminals.
(B) Remove 1 screw holding the temp sensor and replace with new one.
(C) Solder the lead wires securely to the sensor terminals.

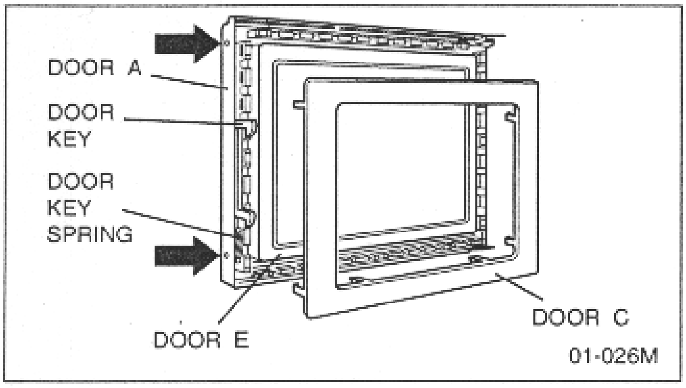


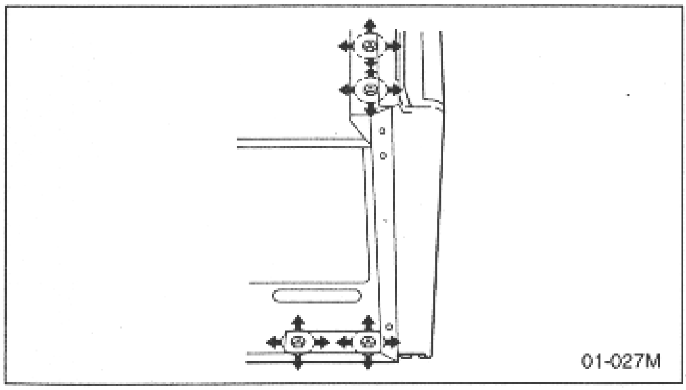
6. Door assembly

(A) Open the door and remove door C from door E by carefully pulling outward starting from upper right hand corner.
(B) Remove door key and door key spring.
(C) Remove 2 screws holding side frame of door A.
(D) Seperate the door A from the door E by freeing catch hooks on the door A using a flat screwdriver.

After replacement of the defective component parts of the door, reassemble it and follow the instructions below for proper installation and adjustment so as to prevent an excessive microwave leakage.

(1) When mounting the door to the oven, be sure to adjust the door parallel to the bottom line of the oven face plate by moving the upper hinge and lower hinge in the direction necessary for proper alignment.
(2) Adjust so that the door has no play between the inner door surface and oven front surface. If the door assembly is not mounted properly, microwave power may leak from the clearance between the door and oven.
(3) Perform the microwave leakage test.





7. Stirrer motor

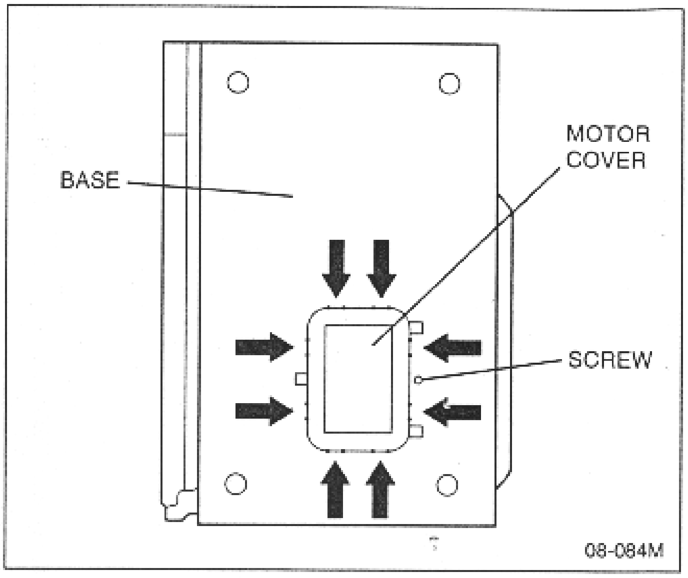
(A) Remove the motor cover by breaking off at the 8 spots indicated by arrows with a cutter or the like. (See Figure)

NOTE: After breaking off the motor cover, make sure that cut-off portions are properly trimmed off or bend to inside so that no sharp edge will expose to outside.

(B) Disconnect 2 lead wires connected to the stirrer motor.

(C) Remove the stirrer motor by removing 2 screws.

NOTE: To reinstall the motor cover, use 4X6 screw.



8. Floor shelf and/or moving antenna

(A) Insert a phillips type screwdriver or equivalent approx. 2" (5 cm) in shaft length in the hole in the left side oven wall as shown in Figure.

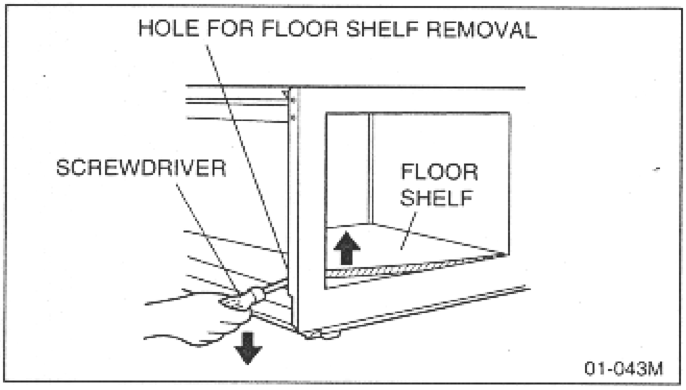
(B) Carefully lift up the floor shelf by prying up with the screwdriver until the floor shelf is lifted up over the level of oven front opening.

(C) Remove the floor shelf by lifting it out through the oven front.

To replace moving antenna.

(D) Remove the moving antenna by simply lifting it up off the stirrer motor shaft.

NOTE: When replacing the moving antenna, make sure the plastic stirrer spacers are correctly in place. They are necessary to stabilize the antenna by gliding around the oven bottom as the antenna turns.



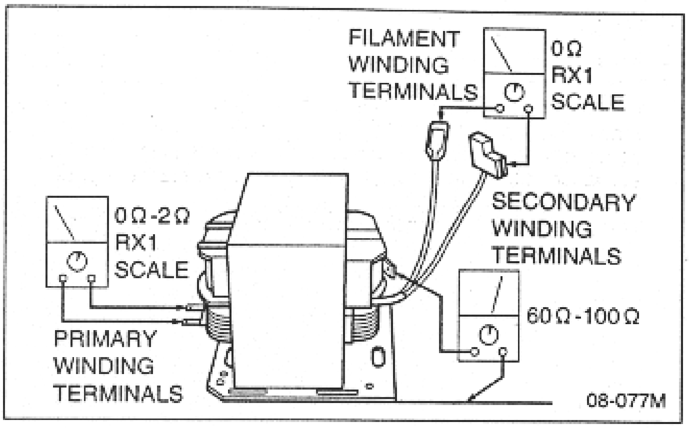
CAUTION

1. High voltage is present at the high voltage terminal of the high voltage transformer during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the high voltage capacitor.

1. High voltage transformer

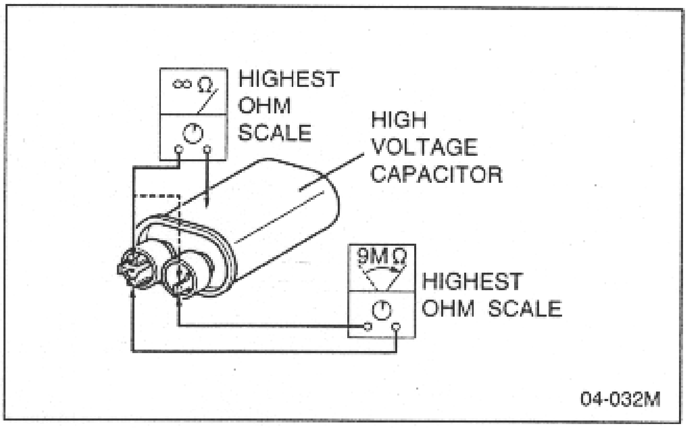
(A) Remove connections from the transformer terminals and check continuity.
(B) Normal (cold) resistance readings should be as follows:

Secondary winding .... Approx. 60 Ω ~ 100 Ω
Filament winding .... Approx. 0 Ω
Primary winding .... Approx. 0 Ω ~ 2 Ω



2. High voltage capacitor

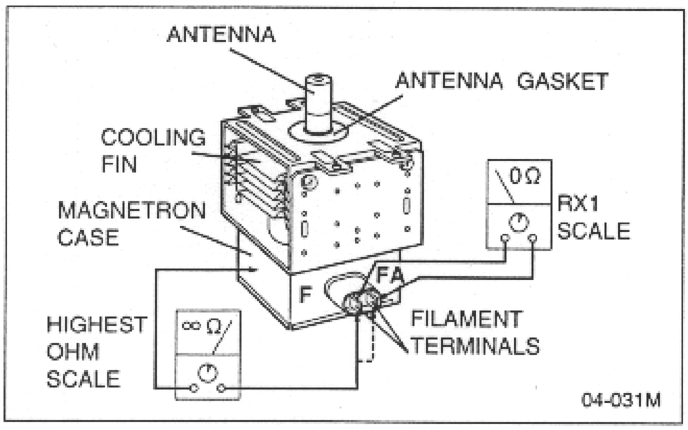
(A) Check continuity of capacitor with meter on highest OHM scale.
(B) A normal capacitor will show continuity for a short time, and then indicate 9MΩ once the capacitor is charged.
(C) A shorted capacitor will show continuous continuity.
(D) An open capacitor will show constant 9MΩ.
(E) Resistance between each terminal and chassis should be infinite.



3. Magnetron

- Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron.

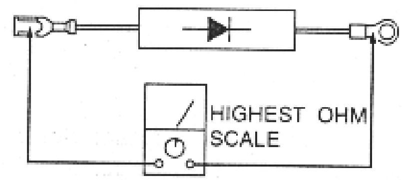
(A) Isolate magnetron from the circuit by disconnecting the leads.
(B) A continuity check across magnetron filament terminals should indicate one ohm or less.
(C) A continuity check between each filament terminal and magnetron case should read open.



4. Diode

(A) Isolate the diode from the circuit by disconnecting the leads.

(B) With the ohmmeter set on the highest resistance scale, measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. Meter with 6V, 9V or higher voltage batteries should be used to check the front-to-back resistance of the diode, otherwise an infinite resistance may be read in both directions.
A normal diode's resistance will be infinite in one direction and several hundred kΩ in the other direction.



NOTE: OHMMETER SHOULD HAVE A MINIMUM 6 VOLT BATTERY.

FORWARD	REVERSE
SEVERAL HANDRED KΩ	∞ Ω

04-033M

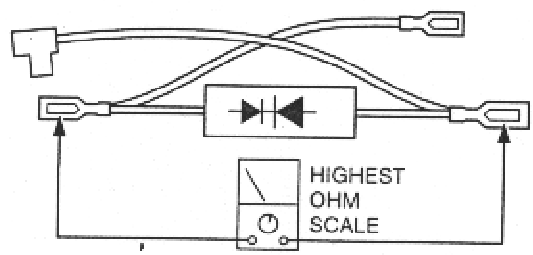
5. Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by tapping an appropriate pad on the key board. The contacts assignment of the respective pads on the key board is as shown in digital programmer circuit.

6. Protector diode

(A) Isolate the protector diode assembly from the circuit by disconnecting its leads.

(B) With the ohmmeter set on the highest resistance scale, measure the resistance across the protector diode terminals.
Reverse the meter leads and again observe the resistance reading.
A normal protector diode's resistance will be infinite in both directions.
It is faulty if it shows continuity in one or both directions.



FORWARD	REVERSE
∞ Ω	∞ Ω

04-039M

7. Temp sensor (Thermal protector)

A temp sensor is mounted on exhaust guide. Its purpose is to automatically shut off the oven in case the cavity overheats for any reason.
The thermal protector will operate at 257°F (125°C).
The device is connected to the DPC on touch control models.
When the thermal protector exceeds its temperature it will turn off the power to oven cavity and display wil go to reset mode.
The cooking program can be reset after cool-down.

THERMISTOR RESISTANCE VALUE
30K-120K at 10°C-30°C (50°F-86°F)

1. Adjustment of Primary latch switch, Secondary latch switch and short switch

(A) When mounting Primary latch switch, Secondary latch switch and short switch to door hook assembly, mount the Primary latch switch, the Secondary latch switch and the short switch to the door hook assembly as shown in table.

NOTE: No specific adjustment during installation of Primary latch switch, Secondary latch switch and short switch to the door hook is necessary.

(B) When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of arrow in table so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.

(C) Reconnect the short switch and check the continuity of the monitor circuit and all latch switches again by following the components test procedures.

2. Measurement of microwave output

The output power of magnetron can be determined by performing IEC standard test procedures. However, due to the complexity of IEC test procedures, it is recommended to test the magnetron using the simple method outlined below.

Necessary Equipmet:

∗ 1 liter beaker ∗ Glass thermometer
∗ Wrist watch or stopwatch

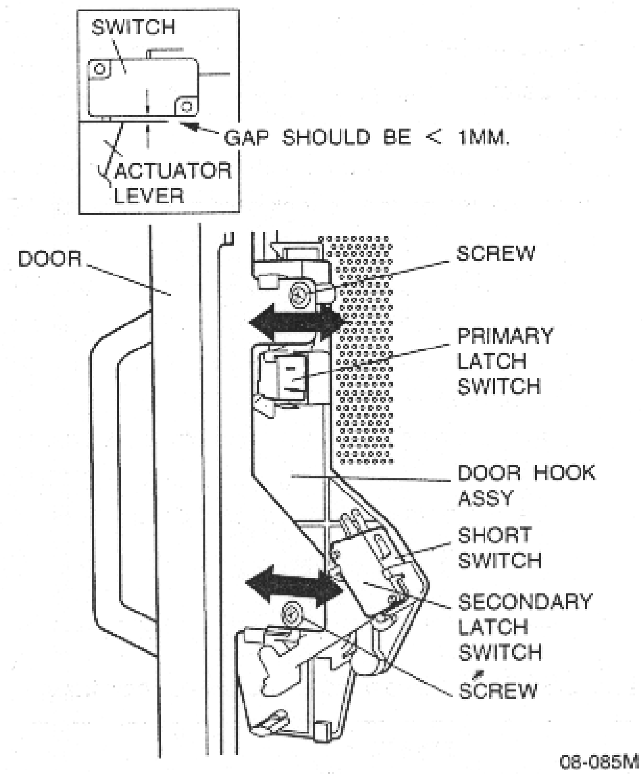
NOTE: Check the line voltage under load. Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurate as possible.

(A) Fill the beaker with exactly one liter of tap water. Stir the water using the thermometer and record the beaker's temperature (recorded as T1).

(B) Place the beaker on the center of glass cook plate. Set the oven for High power and heat it for exactly one minute.

(C) Stir the water again and read the temperature of the beaker (recorded as T2).

(D) The normal temperature rise (T2-T1) at High power position for each model is as shown in table.



Please confirm that the gap between the switch housing and switch actuator levers is no more than 1.0 mm when the door is closed.

TABLE (1 ℓ -1min. test)

1000W (IEC-705)	Min. 8.6°C
950W (IEC-705)	Min. 8.2°C

Testing Power

TROUBLESHOOTING GUIDE

CAUTION

1. Check grounding before checking for trouble.
2. Be careful of the high voltage circuit.
3. Discharge high voltage capacitor.
4. When checking the continuity of the switches or the high voltage transformer, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
   When disconnecting a plastic connector from a terminal, you must hold the plastic connector instead of the lead wire and then disconnect it, otherwise lead wire may be open or the connector cannot by removed.
5. Do not touch any parts of the circuitry on the digital programmer circuit, since static electric discharge may damage this control panel.
   Always touch yourself to ground while working on this panel to discharge any static charge in your body.
6. A 220/230/240V AC is present at the shaded area ▒ of the digital programmer circuit (Terminals of power relay's and primary circuit of low voltage transformer). When troubleshooting, be cautious of possible electrical shock hazard.

First of all operate the microwave oven following the correct operating procedures in order to find the exact cause of any trouble.

【TROUBLE 1】 Oven does not start cooking

	SYMPTOM	CAUSE	CORRECTIONS
1.	Oven is dead. Fuse is OK. No display and no operation at all.	1. Open or loose lead wire harness	
		2. Open thermal cutout (Magnetron)	Check fan motor when thermal cutout is defective.
		3. Open low voltage transformer 4. Defective DPC	
2.	Oven does not accept key input (Program)	1. Key input is not in-sequence	Refer to operation procedure.
		2. Open or loose connection of membrane key pad to DPC (Flat cable) 3. Shorted or open membrane key board	
		4. Defective DPC	Refer to DPC troubleshooting.
3.	Oven lamp and fan motor turn on when oven is plugged in with door closed.	1. Misalignment or loose wiring of secondary latch switch	Adjust door and latch switches.
		2. Defective secondary latch switch	
4.	Timer starts count down but no microwave oscillation.	1. Off-alignment of latch switches	Adjust door and latch switches.
		2. Defective primary latch switch 3. Open or loose wiring of power relay (RY1) 4. Defective power relay (RY1) 5.Defective DPC. 6. Open or loose connection of high voltage circuit especially magnetron filament circuit NOTE: Large contact resistance will bring lower magnetron filament voltage and causing magnetron to lower output and/or intermittent oscillation.	
		7. Defective high voltage component H.V. Transformer H.V. Capacitor H.V. Diode Magnetron	Check high voltage component according to component test procedure and replace if it is defective.

【TROUBLE 2】 Fuse is blown

	SYMPTOM	CAUSE	CORRECTIONS
1.	10A fuse is blown.	1. Shorted lead wire harness	
		2. Defective short switch	Check adjustment of latch switches and door
		3. Defective primary latch switch	
		4. Shorted H.V. Capacitor	
		5. Shorted H.V. Diode	Replace H.V. Diode and protector diode (*NOTE)
		6. Defective magnetron	Replace magnetron and protector diode (*NOTE)
		7. Shorted H.V. Transformer	Replace H.V.Transformer and protector diode (*NOTE)
		8. Shorted Protector diode	
		*NOTE: Be sure to replace protector diode together with those H.V.Components. In this case, only D2 of protector diode may be shorted due to faulty H.V.Component. Therefore, if protector diode is not replaced together, high voltage transformer will be damaged (over heated).	

【TROUBLE 3】 Other troubles

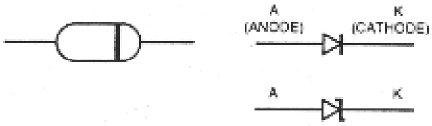
	SYMPTOM	CAUSE	CORRECTIONS
1.	Microwave output is low. Oven takes longer time to cook food.	1. Decrease in power source voltage	Consult electrician
		2. Open or loose wiring of magnetron filament circuit. (Intermittent oscillation) 3. Aging change of magnetron	
2.	Fan motor and oven lamp turn on when door is opened.	1. Shorted primary latch switch	
3.	Oven does not operate and return to plugged in mode.	1. Open or loose wiring of temp sensor 2. Defective temp sensor	Check tighten screws on escutcheon base bracket, D.P.C. board and temp sensor.
		3. Defective DPC	Refer to DPC troubleshooting.
4.	Loud buzzing noise can be heard.	1. Loose fan and fan motor 2. Loose screws on H.V. Transformer	
5.	Oven stops operation during cooking	1. Off-alignment of latch switches	Adjust door and latch switches.
		2. Open or loose wiring of primary and secondary latch switch 3. Operation of thermal cutout (Magnetron)	
6.	Stirrer motor does not rotate.	1. Open or loose wiring of stirrer motor 2. Defective stirrer motor	
7.	"F33" appears in display window.	1. Open temp. sensor. 2. Defective D.P.C.	
8.	"F34" appears in display window.	1. Short temp. sensor. 2. Defective D.P.C.	
9.	"F01" appears in display window and oven beeps.	1. Food is overcooked and oven exhaust temperature too high. (over 130°C)	After cool down (approx. 10 minutes) unplug oven to reset display.
10.	"F44" appears in display window.	1. Malfunctioning keypad stays on for more than 2 minutes.	

Trouble related to Digital Programmer Circuit

SYMPTOM	STEP	CHECK	RESULT	CAUSE/CORRECTIONS
No display when oven is first plugged in	1	Printed fuse pattern of DPC	Normal	STEP 2
			Open (NOTE)	Shorted circuit of ZNR, L. V. T., Oven Lamp etc. Replace DPC
	2	Low voltage transformer (LVT) secondary voltage	Abnormal 0V	LVT
			Normal	→ Step 3
	3	IC-1 pin 1 voltage (Emitter of Q1)	Abnormal	ZD1,Q1
			Normal = 5V	→ Step 4
	4	IC-1 pin 27 voltage (14 pin of IC-2)	Abnormal	IC-2
			Normal ≑ 5V	→ IC-1, CX1, DISPLAY
No key input	1	Membrane switch continuity	Abnormal	Membrane switch
			Normal	IC-1
No beep sound	1	IC-1 pin 23 voltage	Abnormal	IC-1
			Normal	BZ, Q3, Q4, Q8, Q9
Power relay A(RY-3) does not turn on even though the program has been set and the start pad is tapped	1	IC-1 pin 12 voltage while operation	Abnormal	IC-1
			Normal=5V	→ Step 2
	2	short circuit between pin 1 and pin 12 of IC-2	Still not turn on	RY-2
			RY-2 turns on	IC-2
No microwave oscillation at any power setting	1	IC-1 pin 10 and pin 20 voltages while operation at high power	Abnormal	IC-1
			Normal 10---5V, 20---5V IC-1	→ Step 2
	2	Q7 transistor	Abnormal	Q2
			Normal	IC-2, RY-1
Dark or unclear display	1	Replace display and check operation	Normal	DISPLAY
			Abnormal	IC-1
Missing or lighting of unnecessary segment	1	Replace IC-1 and check operation	Normal	IC-1
			Abnormal	DISPLAY

HOW TO CHECK THE SEMICONDUCTORS USING AN OHM METER

Diode



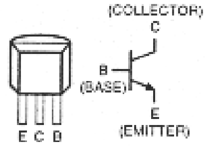
	FORWARD	REVERSE
A-K	SMALL	∞

Transistor

NPN Transistor

2SC……

2SD……

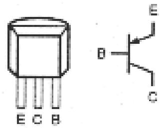


	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

PNP Transistor

2SA……

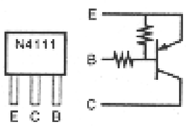
2SB……



	FORWARD	REVERSE
B-E	SMALL	∞
C-B	SMALL	∞
C-E	∞	∞

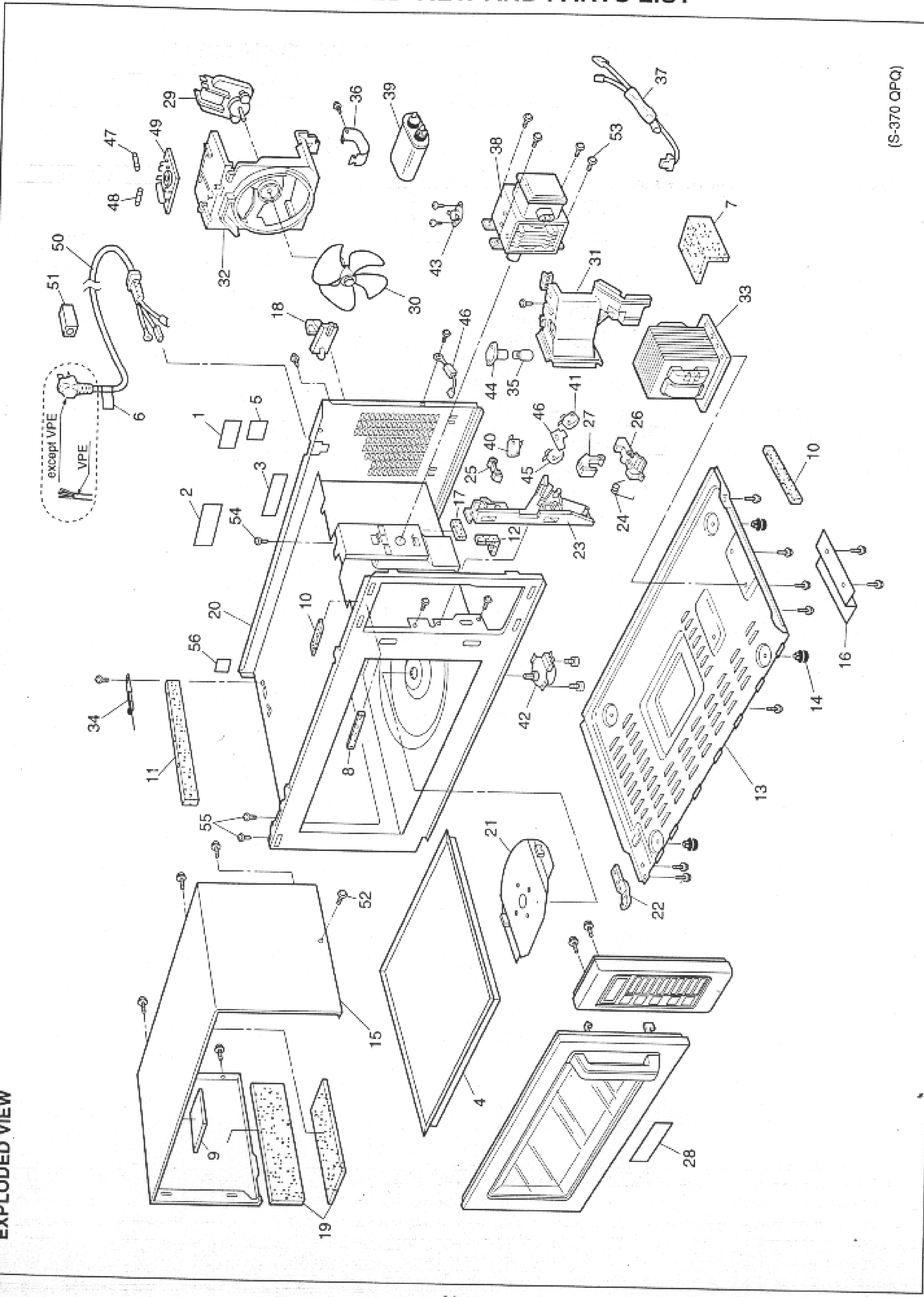
Digital Transistor

PNP Transistor



	FORWARD	REVERSE
E-B	10kΩ ~ 30kΩ	10kΩ ~ 30kΩ
C-B	50kΩ ~ 90kΩ	∞
C-E	40kΩ ~ 80kΩ	∞

EXPLODED VIEW AND PARTS LIST



PARTS LIST

NOTE 1: When ordering replacement part(s), please use part number(s) shown in this parts list.
Do not use description of the part.

2: Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

3: Alphabet marks in Remarks colums (i.e. HNE etc) indicate parts applicable to only specified country models as follows.

JPG: For New Zealand, YNQ: For Singapore,
MNQ: For Malaysia, QPQ: For Australia
HNE: For Hong Kong, VPE: For South Africa etc,
TNE: For Thailand, Indonesia

Parts without these marks can be used for all models.

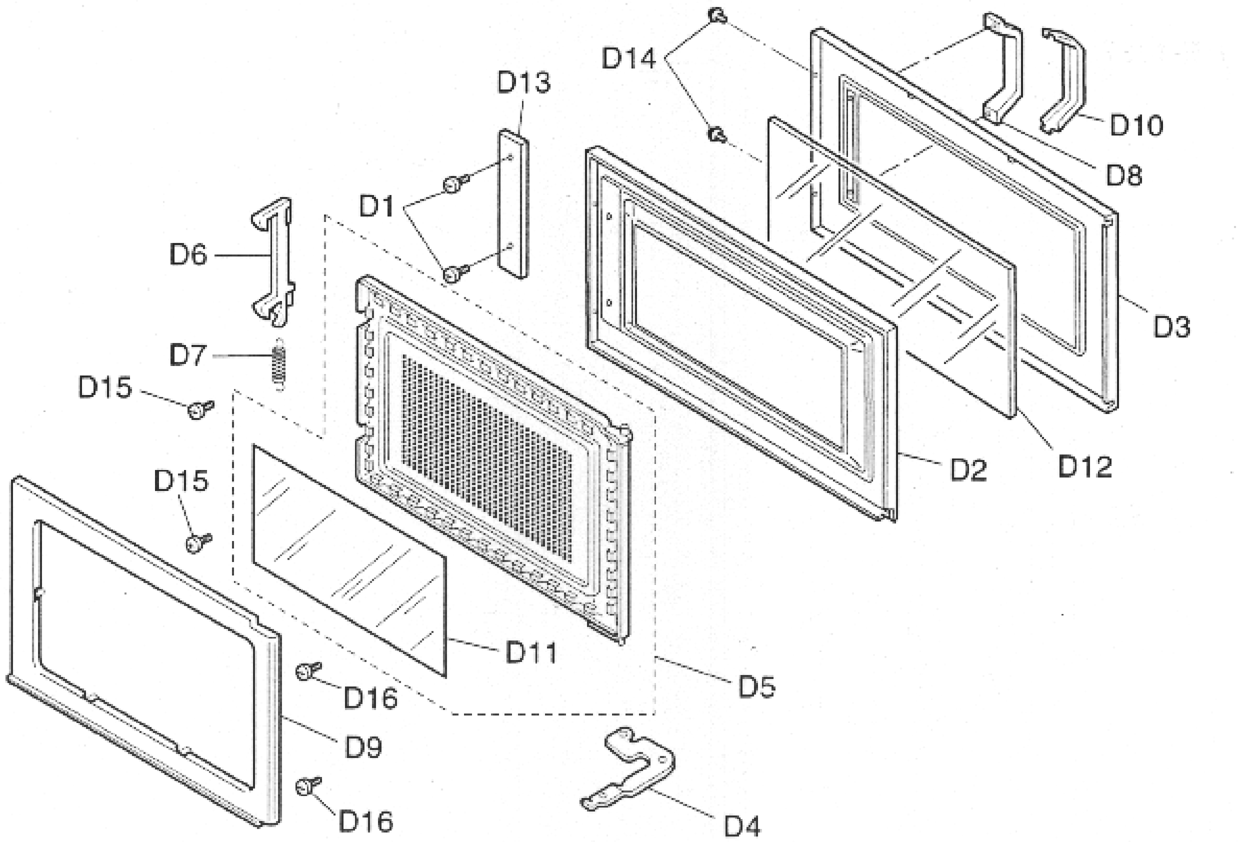
Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
1		A00065460JP	CAUTION LABEL	1	
2		A00065540MN	CAUTION LABEL	1	NE-1037 YNQ
3		A00073700JP	NAME LABEL	1	NE-1037 JPG
3		A00073700MN	NAME LABEL	1	NE-1037 MNQ
3		A00073700QP	NAME LABEL	1	NE-1037 QPQ
3		A00073700YN	NAME LABEL	1	NE-1037 YNQ
3		A00073700HN	NAME LABEL	1	NE-1037 HNE
3		A00073700TN	NAME LABEL	1	NE-1037 TNE
3		A00073700VP	NAME LABEL	1	NE-1037 VPE
4		A010T3700BP	SHELF	1	
5		A02840000MK	NUMBER LABEL	1	NE-1037 YNQ
6		ANE0239570BN	CORD LABEL	1	NE-1037 MNQ/YNQ/HNE/TNE
6		ANE0239L00XN	CORD LABEL	1	NE-1037 VPE
7		ANE0912000QG	CUSHION RUBBER B	1	
8		ANE0921000AH	CUSHION RUBBER C	1	
9		ANE0921000JK	CUSHION RUBBER C	1	
10		ANE000Z000AD	CUSHION RUBBER C	2	
11		ANE0962000AQ	CUSHION RUBBER D	1	
12		ANE0963000BD	CUSHION RUBBER D	1	
13		A10013700BP	BASE	1	
14		A1008-1180	RUBBER FOOT	4	
15		A10093700BP	CABINET BODY (U)	1	
16		A10403700BP	REINFORCE BRACKET	1	
17		A10493700BP	CUSHION RUBBER	1	
18		A11407000AP	STOPPER	1	
19		A12213700BP	BODY CUSHION RUBBER	2	
20	⚠	A200A3700BP	OVEN	1	(NOTE 4)
21		A203P3700BP	ANTENNA	1	
22	⚠	A30073700BP	LOWER HINGE	1	
23	⚠	A3020-1480	DOOR HOOK A	1	
24		A3097-1480	SPRING	1	
25		A3136-1480	HOOK SPACER A	1	
26		A3137-1480	HOOK SPACER B	1	
27		A3138-1480	HOOK SPACER C	1	
28		A31863700BP	DOOR PANEL	1	NE-1037 JPG/QPQ/VPE
28		A31863700HN	DOOR PANEL	1	NE-1037 MNQ/YNQ/HNE/TNE
29		A400A3700BP	FAN MOTOR	1	(26W)
30		A4008-1480	FAN	1	
31		A40253700BP	AIR GUIDE A	1	
32		A41445540AP	ORIFICE	1	
33	⚠	A600B3700HN	H.V.TRANSFORMER	1	(1.7KVA)
34		A601L-1540	TEMP SENSOR	1	
35		A60304080BP	INCANDESCENT LAMP	1	(20W,240V)
36		A60374760GP	CAPACITOR BRACKET	1	
37		A606V3700BP	PROTECTOR DIODE	1	

(S-370 QPQ)

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
38	⚠	2M244-M6E6	MAGNETRON	1	
39	⚠	A60904080GP	H.V.CAPACITOR	1	(1.14MF,AC2100V)
40	⚠	A6142-1450	MICROSWITCH	1	(V-16G-3C26) PRIMARY LATCH SWITCH
41	⚠	A61425180AP	MICROSWITCH	1	(L-3C2-2) SECONDARY LATCH SWITCH
42		A61443660AP	ANTENNA MOTOR	1	(3W)
43	⚠	A61455840GP	THERMAL CUTOUT	1	
44	⚠	A61524650AP	SOCKET	1	
45		ANE6161-3X0	MICRO SWITCH	1	(V-16G-1C25) SHORT SWITCH
46	⚠	A62024000AP	DIODE,SI	1	
47	⚠	A62304210BP	FUSE	1	(10A)
48	⚠	A65953700BP	FUSE B	1	(2.5A)
49		A692Y3700BP	NOISE FILTER (U)	1	
50	⚠	A900C3700QP	AC CORD W/PLUG	1	NE-1037 JPG/QPQ (230-240V)
50	⚠	A900C3700MN	AC CORD W/PLUG	1	NE-1037 MNQ/YNQ/HNE (220-240V)
50	⚠	A900C3700TN	AC CORD W/PLUG	1	NE-1037 TNE (220V)
50	⚠	A900C3700VP	AC CORD W/OUT PLUG	1	NE-1037 VPE (220V)
51		A90353700BP	CORD BRACKET	1	
52		XTC4+10BC	SCREW	1	(4X10) FOR CABINET BODY
53		XTWANE4+10RU	SCREW	4	(4X10) FOR MAGNETRON
54		XYCA4+BE12	SCREW	1	(4X12) FOR EARTH
55		XYF4+AF8	SCREW	2	(4X8) FOR HINGE
56		ANE00057J0XN	EARTH LABEL	1	NE-1037 TNE

NOTE 4 : Please order name plate together.

DOOR ASSEMBLY

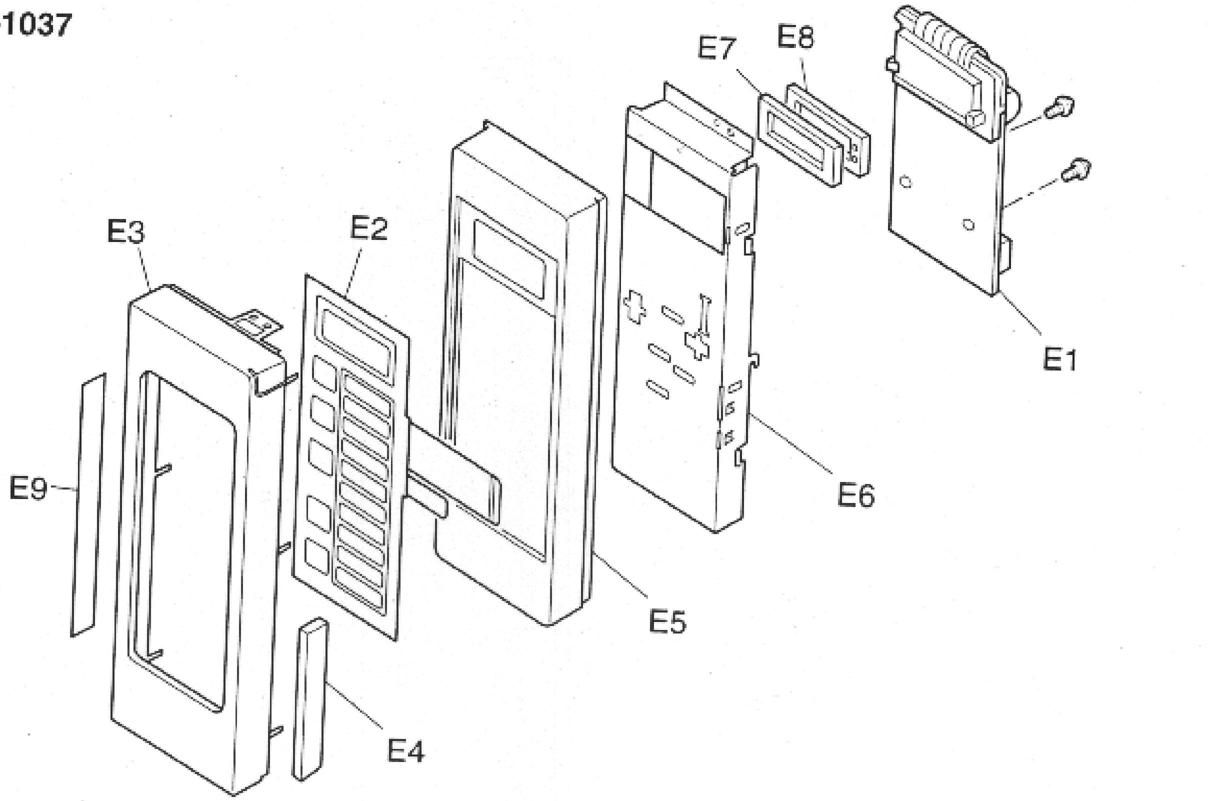


(S-370 QPQ)

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
D1		XYEANE4+C16T	SCREW	2	(4X16)
D2	⚠	A300A3700AP	DOOR B (U)	1	
D3	⚠	A30013700AP	DOOR A (U)	1	
D4	⚠	A30063700BP	UPPER HINGE	1	
D5	⚠	A302K3700BP	DOOR E (U)	1	
D6		A3018-1480	DOOR KEY A	1	
D7		A30214000AP	DOOR KEY SPRING	1	
D8		A30703170GP	HANDLE PEICE A	1	
D9	⚠	A30858960HN	DOOR C	1	
D10		ANE31348U0AP	HANDLE PEICE B	1	
D11	⚠	A31453700BP	DOOR SCREEN A	1	
D12		A31463700AP	DOOR SCREEN B	1	
D13		A32863700AP	HANDLE SPACER	1	
D14		XTBANE3+8BC	SCREW	2	(3X8)
D15		XTNANE4+8BN	SCREW	2	(4X8)
D16		XTN4+8B	SCREW	2	(4X8)

ESCUTCHEON BASE ASSEMBLY

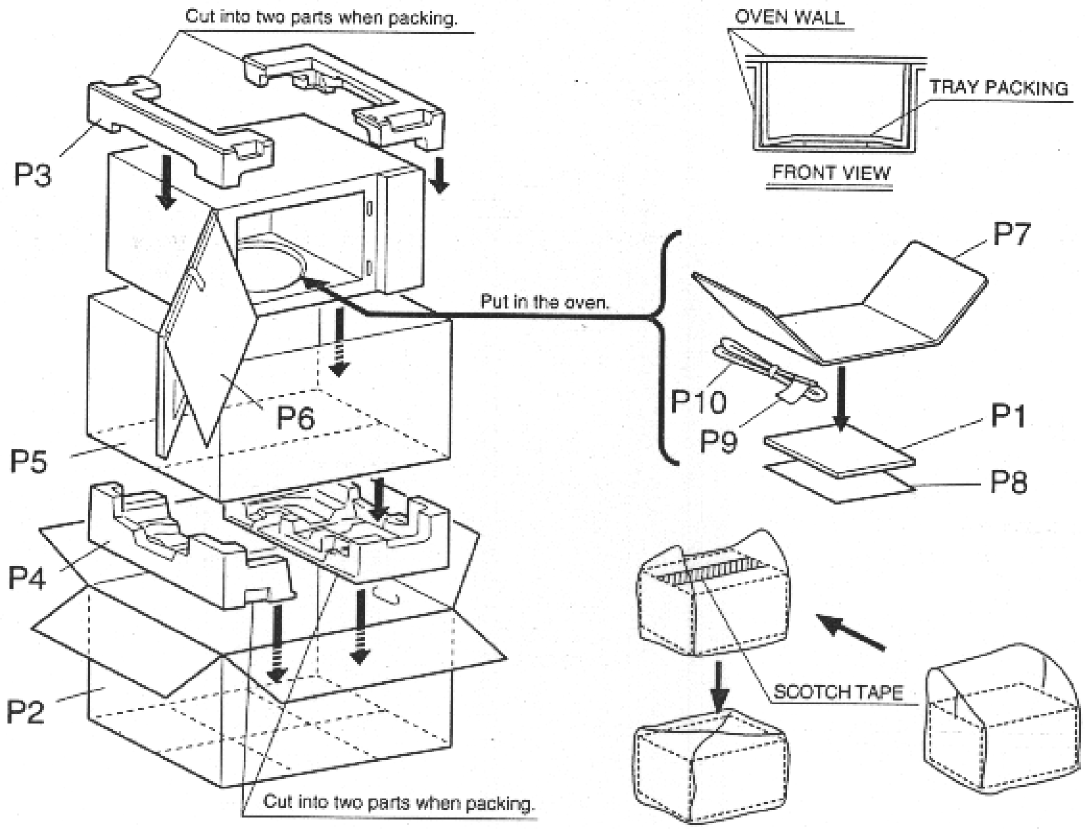
NE-1037



(S-370 QPQ)

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
E1	⚠	A603L3700BP	D.P.CIRCUIT (U)	1	RTL (W/COMPONENT) NE-1037 JPG/MNQ/QPQ/YNQ
E1	⚠	A603L3700VP	D.P.CIRCUIT (U)	1	RTL (W/COMPONENT) NE-1037 HNE/TNE/VPE
E2		A64793700QP	MEMBRANE SWITCH	1	
E3		A800N3700AP	ESCUTCHEON A	1	
E4		A80253700BP	CUSHION RUBBER A	1	
E5		A80343700AP	ESCUTCHEON BASE	1	
E6		A81273700AP	BACK PANEL	1	
E7		A82843700BP	SPACER CUSHION	1	
E8		A83423700BP	CUSHION RUBBER B	1	
E9		A01726210JP	CAUTION LABEL	1	NE-1037 JPG

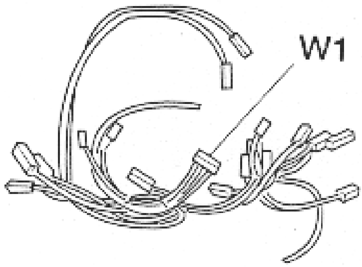
PACKING AND ACCESSORIES

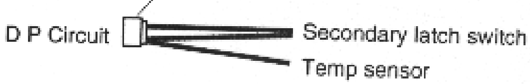


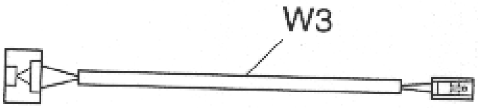
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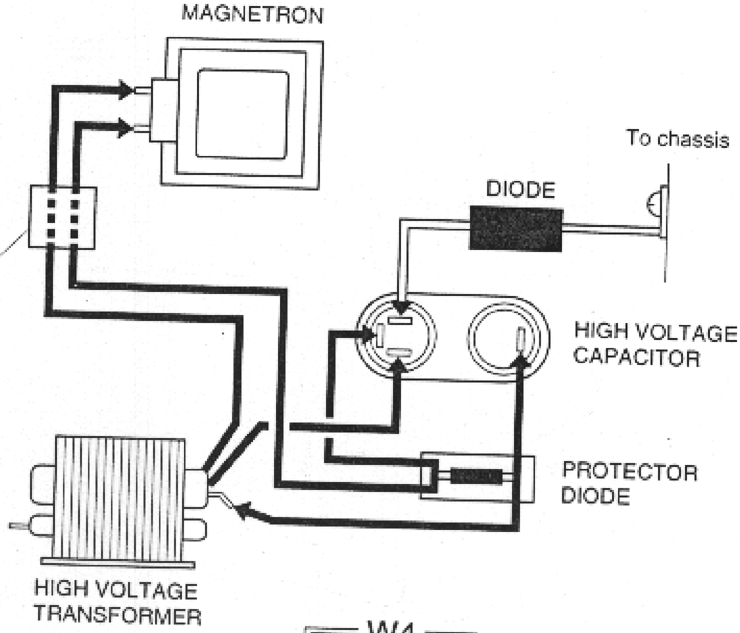
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P1		A00033700HN	INSTRUCTION BOOK	1	NE-1037 MNQ/YNQ/HNE
P1		A00033700TN	INSTRUCTION BOOK	1	NE-1037 TNE
P2		A01023700JP	PACKING CASE,PAPER	1	NE-1037 JPG
P2		A01023700MN	PACKING CASE,PAPER	1	NE-1037 MNQ
P2		A01023700QP	PACKING CASE,PAPER	1	NE-1037 QPQ
P2		A01023700YN	PACKING CASE,PAPER	1	NE-1037 YNQ
P2		A01023700HN	PACKING CASE,PAPER	1	NE-1037 HNE
P2		A01023700TN	PACKING CASE,PAPER	1	NE-1037 TNE
P2		A01023700VP	PACKING CASE,PAPER	1	NE-1037 VPE
P3		A01043700BP	UPPER FILLER	1	
P4		A01053700BP	LOWER FILLER	1	
P5		A01064830AP	VINYL COVER	1	
P6		ANE01072Q0AP	DOOR SHEET	1	
P7		A01083700BP	TRAY PACKING	1	
P8		A04203700QP	OPERATING GUIDE	1	NE-1037 JPG/QPQ/VPE
P8		A04203700HN	OPERATING GUIDE	1	NE-1037 MNQ/YNQ/HNE
P8		A04203700TN	OPERATING GUIDE	1	NE-1037 TNE
P9		A00324040XN	EARTH CAUTION LABEL	1	NE-1037 TNE
P10		A91644000XN	EARTH LEAD	1	NE-1037 TNE

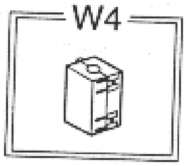
WIRING MATERIAL











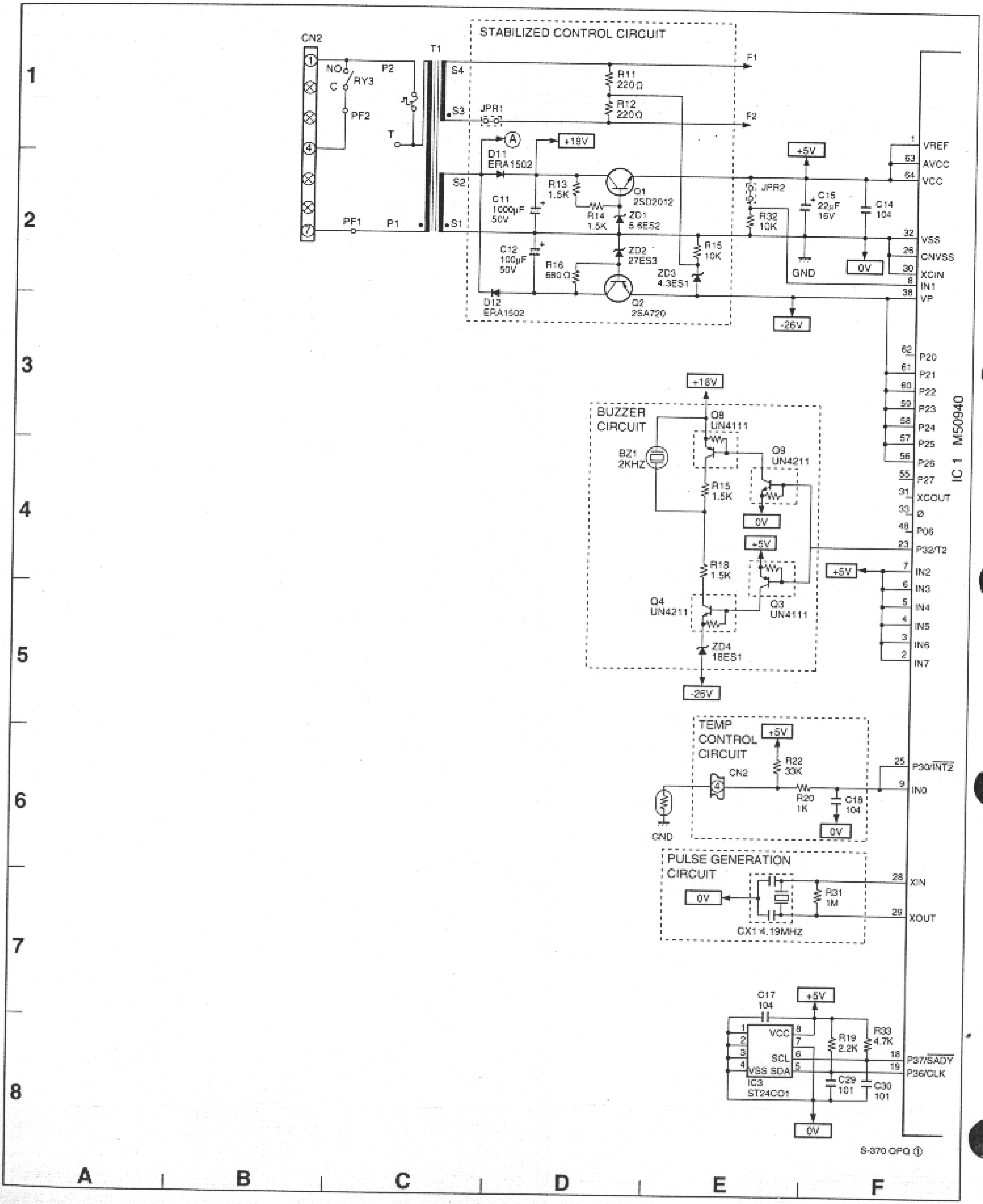
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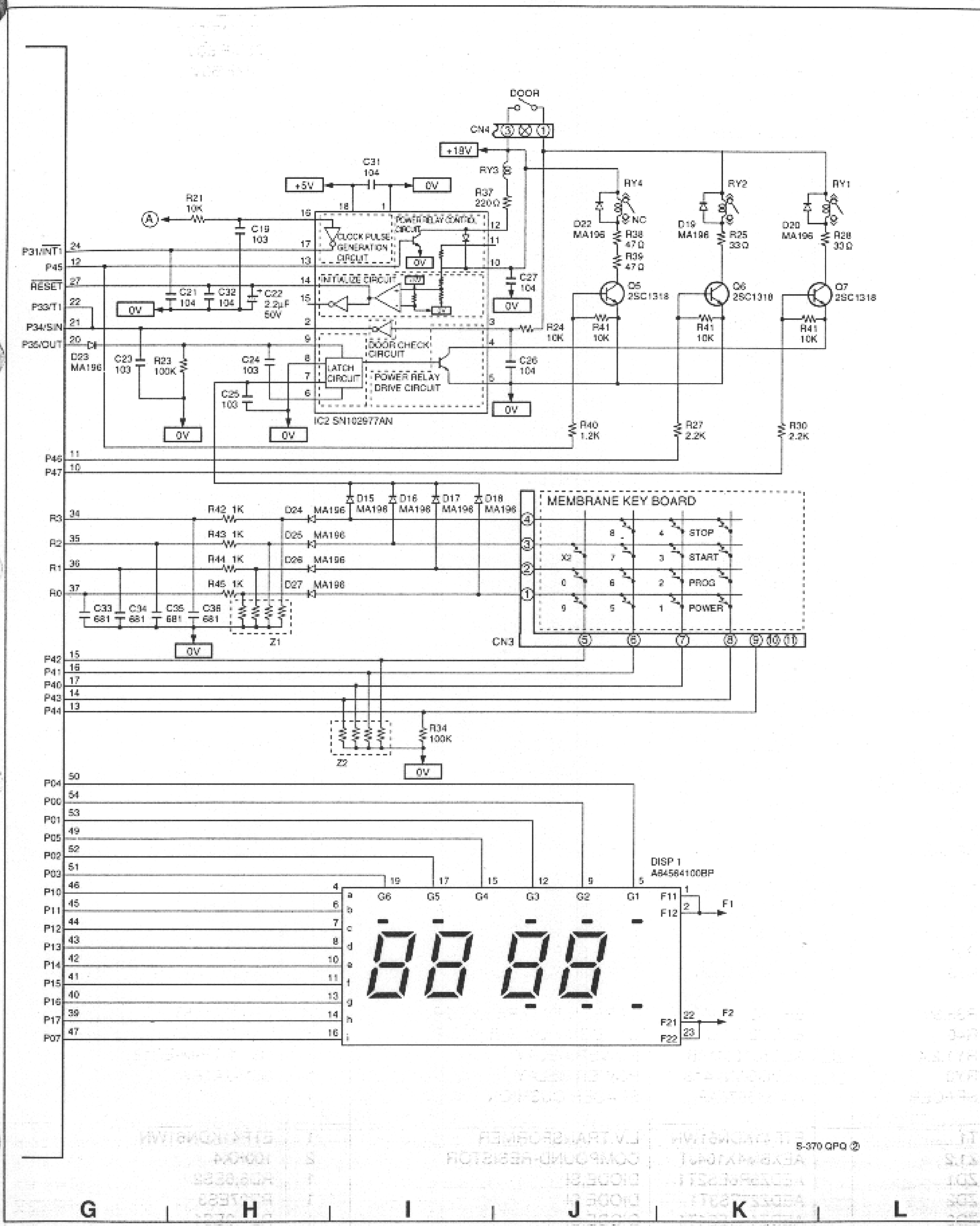
Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
W1		A030A3700BP	LEAD WIRE HARNESS	1	
W2		A03533700BP	LEAD WIRE	1	
W3		A03553700BP	LEAD WIRE	1	
W4		A50966520UP	FERRITE CORE	1	

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
REF NO. 49 NOISE FILTER (U)					
C1		ECQU2A104MN	POLYESTER CAPACITOR	1	0.1MF,250V
C2,3	⚠	ECKMNA472AE	CERAMIC CAPACITOR	2	0.0047MF,250V
CN1		AEEMMD00703W	CONNECTOR	1	
F1		A62316010BP	FUSE HOLDER	2	
F2		A62316000GP	FUSE HOLDER	2	
L1		A621A-1810	FILTER COIL	1	
R1		ERF10ZXJ240Z	RESISTOR	1	24Ω,10W,5%
R2		ERD25FJ564S	CARBON FILM RESISTOR	1	560KΩ,1/4W,5%
ZNR1		ERZC10DK621F	VARISTOR	1	
ZNR2,3		ERZC10DK112A	VARISTOR	2	

DIGITAL PROGRAMMER CIRCUIT

SCHEMATIC DIAGRAM




DOOR
CN4
+19V
RY3
C31 104
+5V
0V
R37 220Ω
R21 10K
C19 103
CLOCK PULSE GENERATION CIRCUIT
POWER RELAY CONTROL CIRCUIT
INITIALIZE CIRCUIT
DOOR CHECK CIRCUIT
LATCH CIRCUIT
POWER RELAY DRIVE CIRCUIT
IC2 SN102977AN
C27 104
C26 104
C21 104
C32 104
C22 2.2μF 50V
C23 103
R23 100K
C24 103
C25 103
D23 MA196
P31/INT1
P45
RESET
P33/T1
P34/S.IN
P35/OUT
RY4
RY2
RY1
D22 MA196
D19 MA196
D20 MA196
NC
R38 47Ω
R39 47Ω
R25 33Ω
R28 33Ω
Q5 2SC1318
Q6 2SC1318
Q7 2SC1318
R24 10K
R41 10K
R40 1.2K
R27 2.2K
R30 2.2K
P46
P47
D15 MA196
D16 MA196
D17 MA196
D18 MA196
MEMBRANE KEY BOARD
R3
R2
R1
R0
R42 1K
R43 1K
R44 1K
R45 1K
D24 MA196
D25 MA196
D26 MA196
D27 MA196
STOP
START
PROG
POWER
X2
C33 681
C34 681
C35 681
C36 681
Z1
CN3
P42
P41
P40
P43
P44
R34 100K
Z2
P04
P00
P01
P05
P02
P03
P10
P11
P12
P13
P14
P15
P16
P17
P07
DISP 1 A84564100BP
G6
G5
G4
G3
G2
G1
F11
F12
F1
F21
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F2
S-370 QPQ ②
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DIGITAL PROGRAMMER CIRCUIT

PARTS LIST

Ref. No.		Part No.	Description	Pcs/ Set	Remarks
BZ		AEFB22EP20TL	BUZZER	1	2.0KHZ
C11		ECA1HM102E	ELECTROLYTIC CAPACITOR,AL	1	1000MF/50V
C12		ECA1HM101B	ELECTROLYTIC CAPACITOR,AL	1	100MF/50V
C14,17,18, 21,26,27,31, 32		AECF50F104Z	CERAMIC CAPACITOR	8	0.1MF/50V
C15		ECEA1CKA100B	ELECTROLYTIC CAPACITOR,AL	1	10MF/16V
C19,23,24,25		ECBT1E103ZF5	CERAMIC CAPACITOR	4	0.01MF/25V
C22		ECEA1HKA2R2B	ELECTROLYTIC CAPACITOR,AL	1	2.2MF/50V
C29,30		ECBT1H101KB5	CERAMIC CAPACITOR	2	0.0001MF/50V
C33,34,35,36		ECBT1H681KB5	CERAMIC CAPACITOR	4	680PF
CN2		AEEMMD04907W	CONNECTOR	1	7PIN
CN3		AEEM11FDZBTM	CONNECTOR	1	
CN4		AEEMMF00D04W	CONNECTOR	1	4PIN
CX1		AEFFT4R19GWT	CERAMIC RESONATOR	1	4.19MHZ
D11,12		AEDNERA1502	DIODE,SI	2	1.0A
D15,16,17, 18,19,20,22, 23,24,25,26, 27		MA196-(TA5)	DIODE,SI	12	0.1A
DISP		A64564100BP	FLUORESCENT TUBE	1	FV-163
IC1		AEIC50940509	IC	1	NE-1037 HNE/TNE/VPE
IC1		AEIC50940507	IC	1	NE-1037 JPG/MNQ/QPQ/YNQ
IC2		AEIC102977AN	IC	1	SN102977AN/AN6752
IC3		AEICST24C01B	IC	1	ST24C01B
Q1		2SD2012	TRANSISTOR,SI,2W	1	3MHZ
Q2		2SA720PRTA	TRANSISTOR,SI,400MW	1	200MHZ
Q3,8		UN4111-(TA)	TRANSISTOR,SI,300MW	2	
Q4,9		UN4211-(TA)	TRANSISTOR,SI,300MW	2	
Q5,6,7		2SC1318QSTA	TRANSISTOR,SI,400MW	3	200MHZ
R11,12,37		ERDS2TJ221T	CARBON FILM RESISTOR	3	220Ω,1/4W,5%
R13,14,17,18		ERDS2TJ152T	CARBON FILM RESISTOR	4	1.5KΩ,1/4W,5%
R15,21,24, 26,29,32,41		ERDS2TJ103T	CARBON FILM RESISTOR	7	10KΩ,1/4W,5%
R16		ERDS2TJ681T	CARBON FILM RESISTOR	1	680Ω,1/4W,5%
R19,27,30		ERDS2TJ222T	CARBON FILM RESISTOR	3	2.2KΩ,1/4W,5%
R20,42,43		ERDS2TJ102T	CARBON FILM RESISTOR	5	1.0KΩ,1/4W,5%
R22		ERDS2TJ333T	CARBON FILM RESISTOR	1	33KΩ,1/4W 5%
R23,34		ERDS2TJ104T	CARBON FILM RESISTOR	2	100KΩ,1/4W,5%
R25,28		ERDS2TJ330T	CARBON FILM RESISTOR	2	33Ω,1/4W 5%
R31		ERDS2TJ105T	CARBON FILM RESISTOR	1	1MΩ,1/4W,5%
R33		ERDS2TJ472T	CARBON FILM RESISTOR	1	4.7KΩ,1/4W,5%
R38,39		ERDS2TJ470T	CARBON FILM RESISTOR	2	47Ω,1/4W,5%
R40		ERDS2TJ122T	CARBON FILM RESISTOR	1	1.2KΩ1/4W,5%
RY1,2,4	⚠	AEG5J1EM18B	POWER RELAY	3	G5J-1-TP-M-ER18
RY3	⚠	AEBGG5N1A18	POWER RELAY	1	G5N-1A18V
SPACER		A82845570AP	SPACER CUSHION	1	
T1		ETP41KDN61WN	L.V.TRANSFORMER	1	ETP41KDN61WN
Z1,2		AEXBM4X104JT	COMPOUND-RESISTOR	2	100KX4
ZD1		AEDZ5R6ES2T1	DIODE,SI	1	RD5.6ES2
ZD2		AEDZ27ES3T1	DIODE,SI	1	RD27ES3
ZD3		AEDZ4R3ES1T1	DIODE,SI	1	RD4.3ES1
ZD4		AEDZ18ES1T1	DIODE,SI	1	RD18ES1